

ABSTRACT

In accordance with this invention a compaction unit (100) is provided that includes: (a) an elongated open-ended ramming chamber (50) having a fill port opening (51), a longitudinal bore (52), a compression end (53), and an extrusion end (57), (b) a ramming head (20) pushes material within compression end (53) of ramming chamber (50) along longitudinal bore (52), (c) to add a new lift to a continuous homogeneous block (40) comprised of all previously compressed material occupies the bulk of the extrusion end (57) of ramming chamber (50), and functions as an integral part of the compaction unit (100), (d) a hydraulic cylinder (10) (part of an actuator) provides movement to ramming head (20) to compress the loose block making material (40A) (e.g., earth) against block (40). This forms a new lift (40B) that is effectively fused with the previous lift (40C) to form a continuous homogeneous block (40) of relatively high density material that exits the compaction unit (100). As the ramming head (20) moves forward, it closes off the fill port opening (51). A shearing chamber (60) fractures the blocks to any desired length, while a support platform (70) supports and stores the blocks until utilized. The shearing chamber (60) moves transverse to the ramming chamber to form the fracture. A process is described that utilizes standard construction equipment and a modified lifting device to hoist and place the blocks within a building system. Additionally, a special design feature (22) is incorporated into ramming head (20) to increase the “frictional threshold” of the material being compressed within chamber 50.